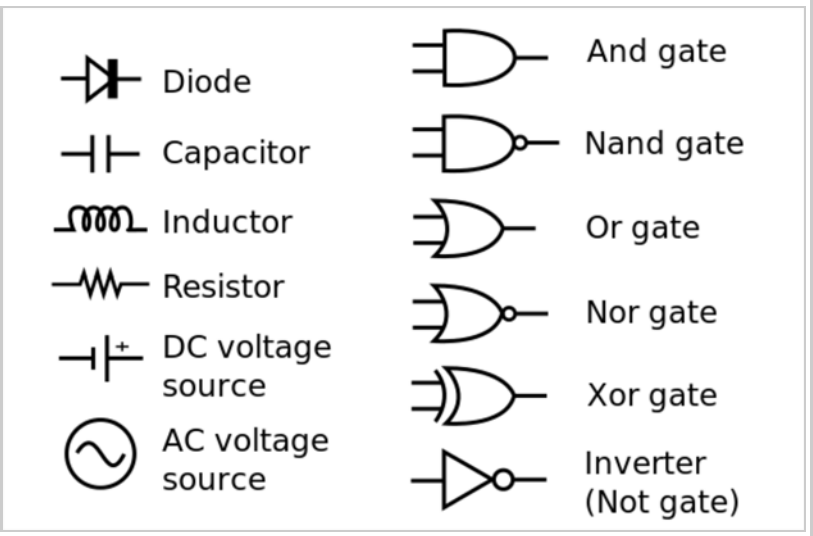
Electronic symbol

From Wikipedia, the free encyclopedia

An **electronic symbol** is a pictogram used to represent various electrical and electronic devices (such as wires, batteries, resistors, and transistors) in a schematic diagram of an electrical or electronic circuit. These symbols can (because of remaining traditions) vary from country to country, but are today to a large extent internationally standardized. Some symbols represent components (such as vacuum tubes) which ceased to be used routinely as newer technologies were introduced.



Common circuit diagram symbols (US symbols)

Contents

Standards for symbols

There are several national and international standards for graphical symbols in circuit diagrams, in particular:

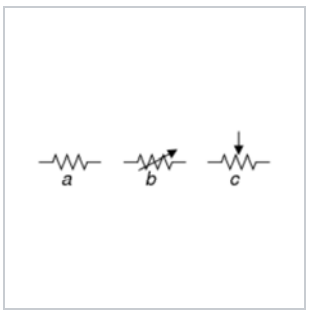
- IEC 60617 (also known as British Standard BS 3939).
- ANSI standard Y32.2 (also known as IEEE Std 315).
- IEEE Std 91/91a: graphic symbols for logic functions (used in digital electronics). It is referenced in ANSI Y32.2/IEEE Std 315.
- Australian Standard AS 1102.

Different symbols may be used depending on the discipline using the drawing. For example, lighting and power symbols used as part of architectural drawings may be different from symbols for devices used in electronics. National and local variations to international standards also exist.

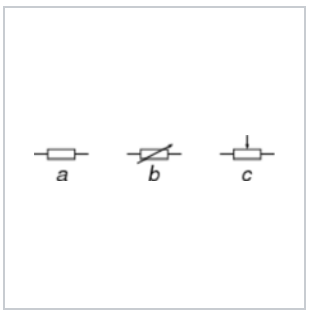
Gallery of common electronic symbols

Symbols shown are typical examples, not a complete list.[1]

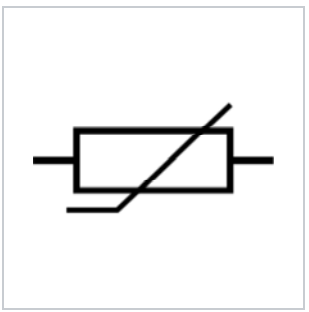
Resistors



(a) American-style resistor, (b) rheostat (variable resistor), and (c) potentiometer

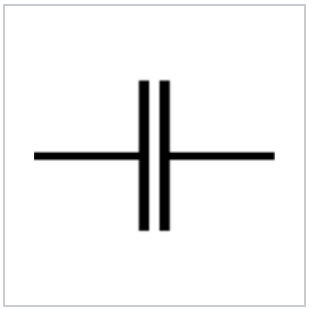


(a) IEC-style resistor, (b) rheostat (variable resistor), and (c) potentiometer

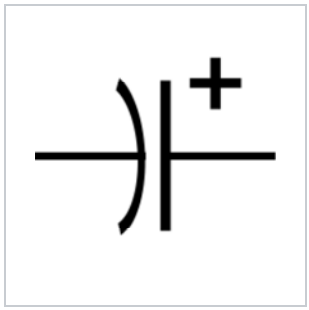


Thermistor

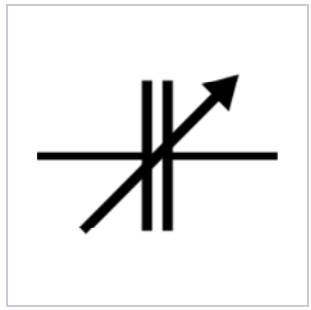
Capacitors



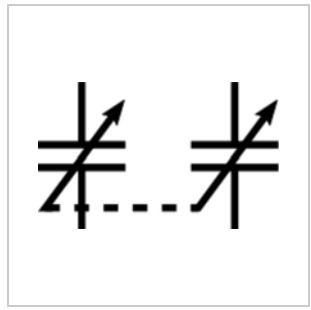
Capacitor



Capacitor, polarized (American)

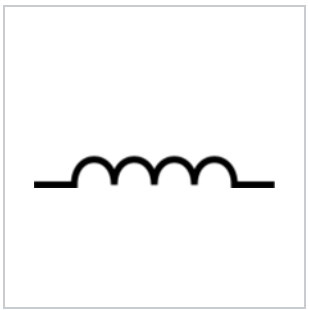


Capacitor, variable

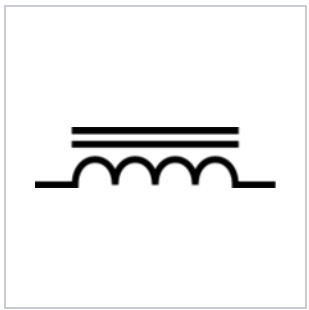


IEC-style adjustable capacitors

Inductors



IEC-style Inductor

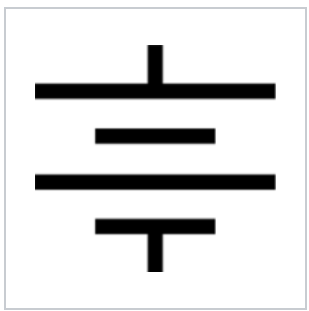


Inductor with magnetic core (IEEE Std 315)

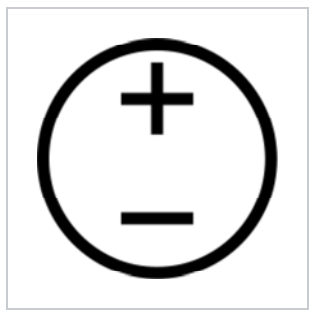
IEC-style tapped Inductor

Sources

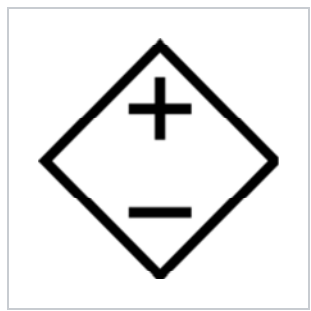
Single cell, multi-cell battery



Battery, multi-cell



Voltage source



Controlled voltage source

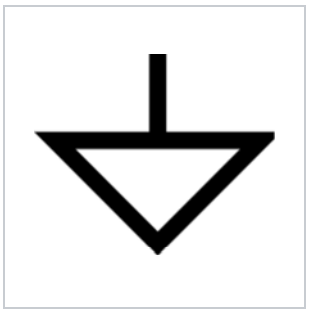
Current source

Controlled current source

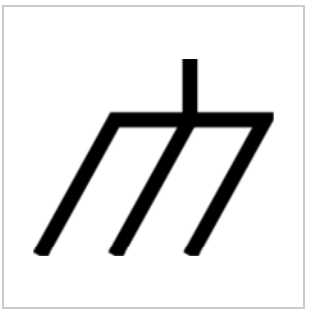
AC voltage source

Circuit Return

IEC-style ground (GND) symbol



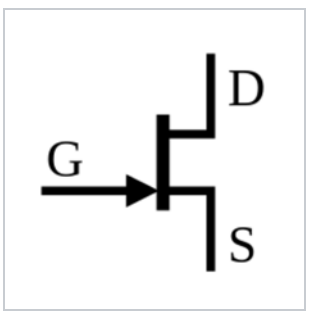
Signal/Low noise ground (GND) symbol



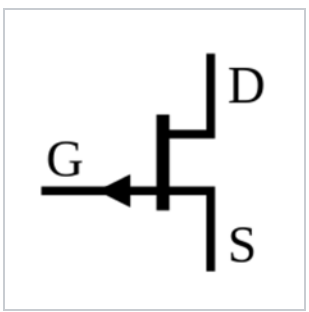
IEC-style chassis symbol

Transistors

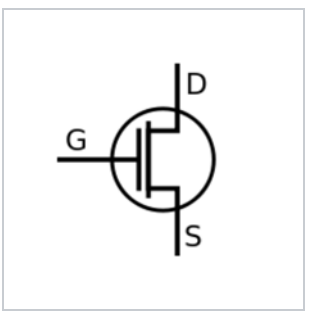
Unipolar



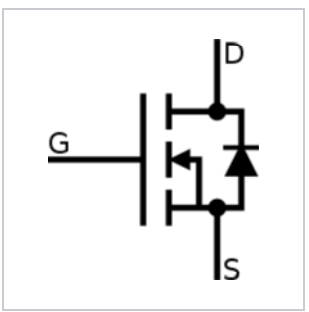
N-channel junction gate field-effect transistor (JFET)



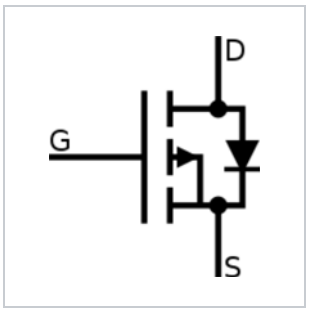
P-channel junction gate field-effect transistor (JFET)



Metal-Oxide-Semiconductor Field-Effect Transistor

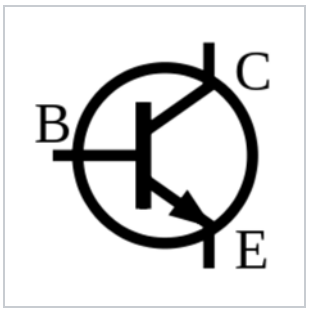


Enhancement mode, N-channel MOSFET

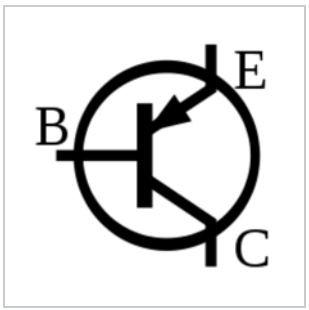


Enhancement mode,
P-channel MOSFET

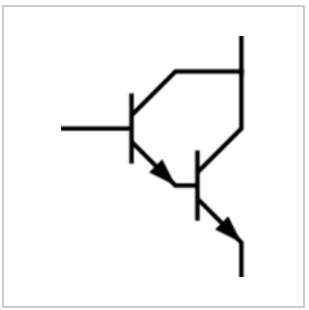
Bipolar



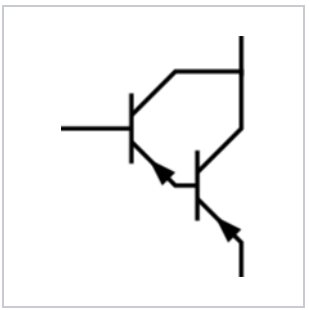
NPN bipolar junction transistor (BJT)



PNP bipolar junction transistor (BJT)

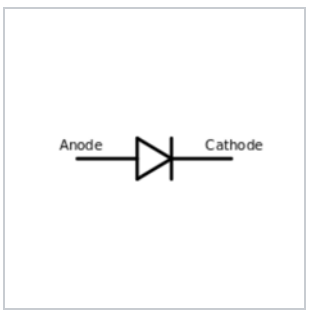


NPN darlington

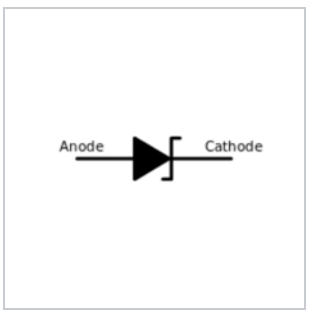


PNP darlington

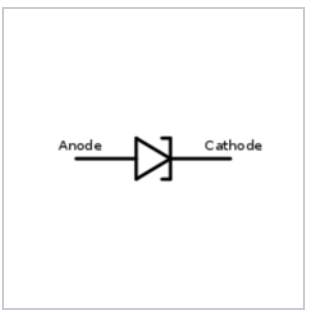
Diodes



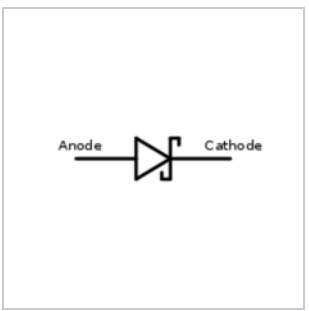
Diode



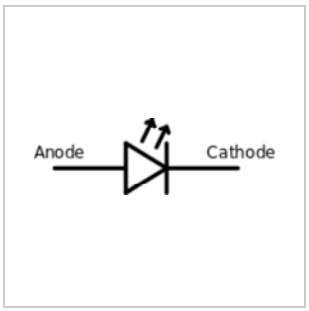
Zener diode



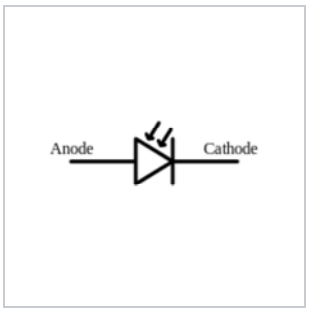
Tunnel diode



Schottky diode

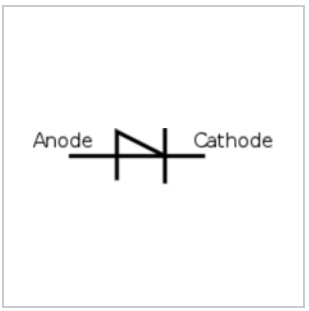


Light Emitting Diode (LED)

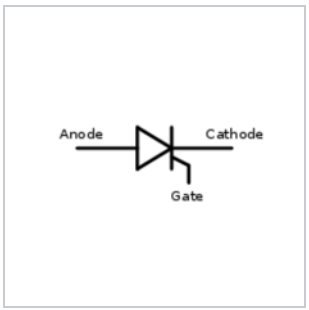


Photodiode

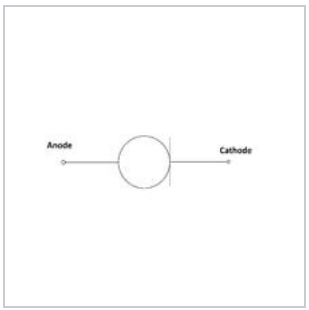
Varicap



Shockley diode

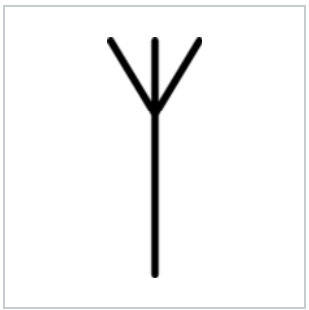


Silicon-controlled rectifier (SCR)

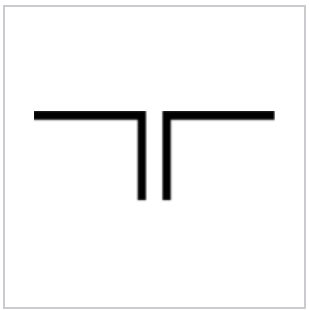


Constant-current diode

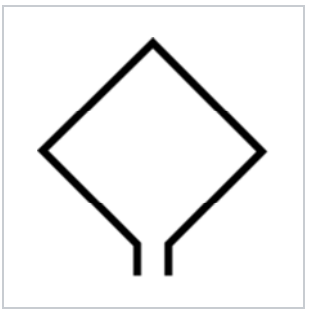
Antennas



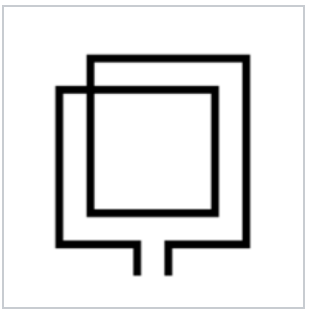
IEC-style antenna



IEC-style dipole antenna

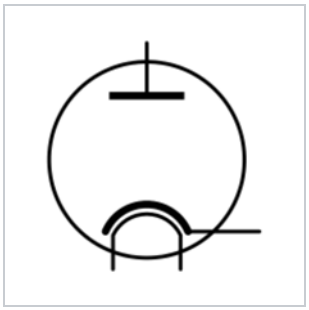


IEC-style loop antenna

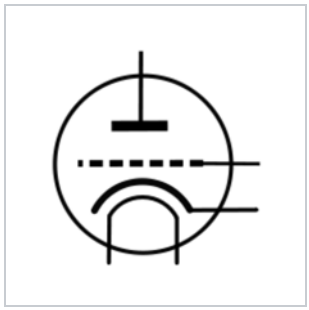


Loop antenna (IEEE Std 315)

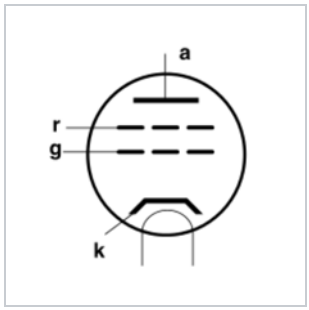
Vacuum tubes



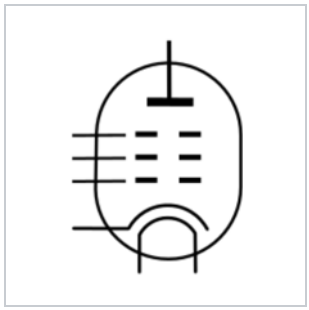
Vacuum tube diode



Vacuum tube triode

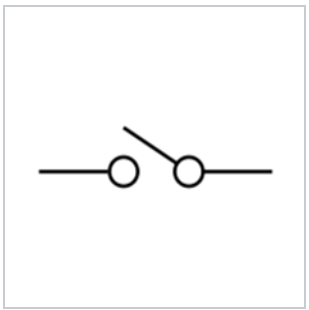


Vacuum tube tetrode

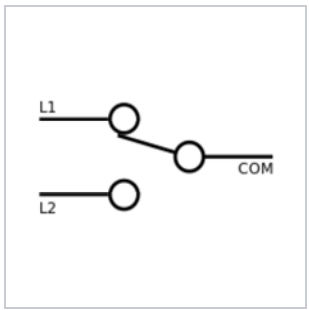


Vacuum tube pentode

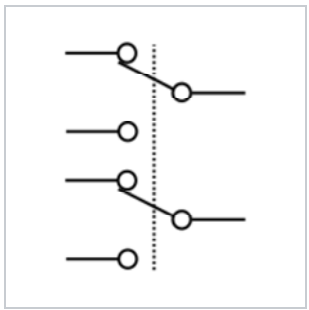
Switches



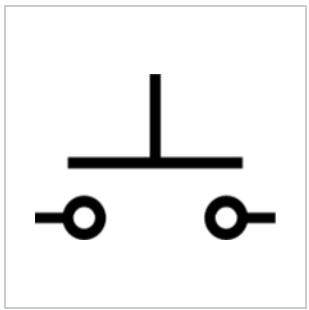
Switch, Single Pole/Single Throw (SPST)



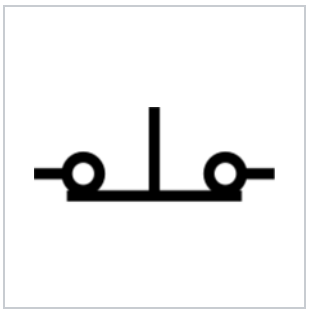
Switch, Single Pole/Double Throw (SPDT)



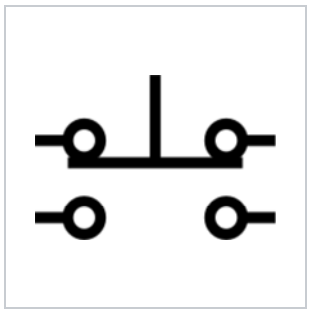
Switch, Double Pole/Double Throw (DPDT)



Momentary switch, make (IEEE Std 315)

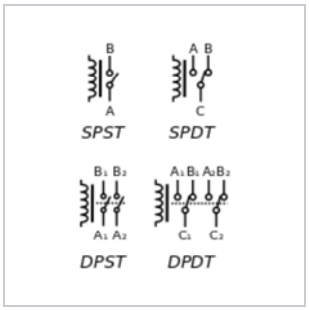


Momentary switch, break (IEEE Std 315)

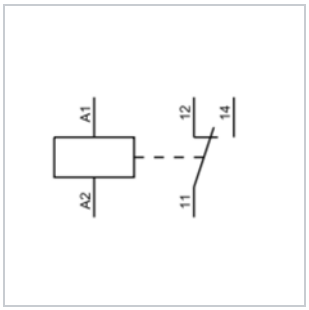


Momentary switch, two circuit (IEEE Std 315)

Relays

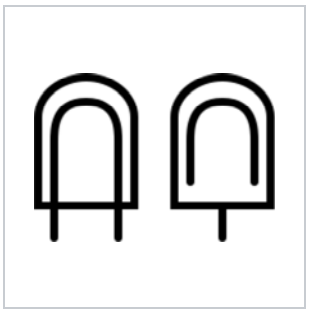


American-style relays, SPST, SPDT, DPST, DPDT

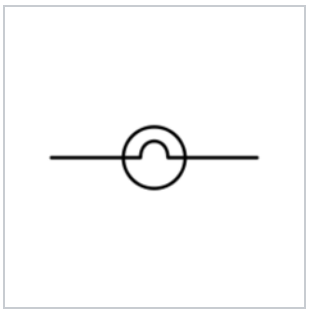


IEC relay symbol, SPDT

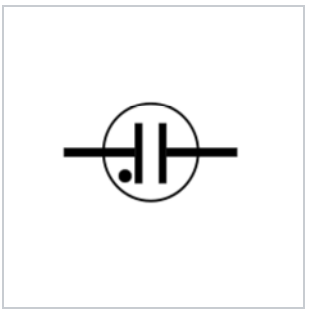
Lamps



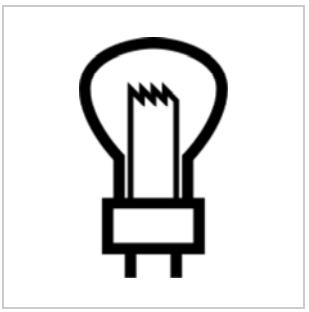
Indicating lamp (IEEE Std 315-1975)



Incandescent lamp

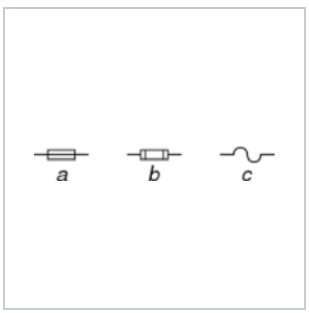


Neon lamp

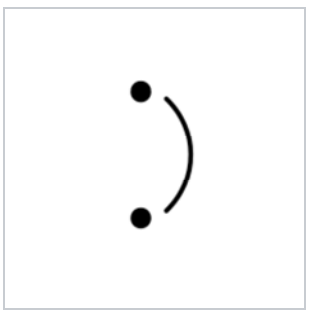


Light bulb

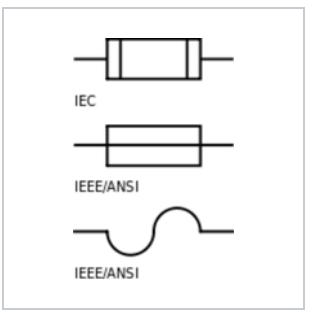
Current Limiters



IEC Fuse (a), equivalent symbols (b,c) (IEEE Std 315-1975)

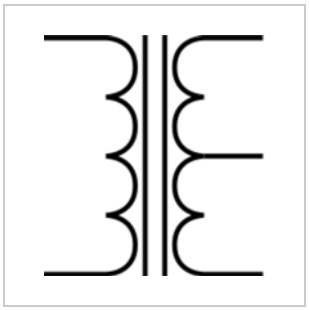


Moulded Case Circuit Breaker (MCCB)

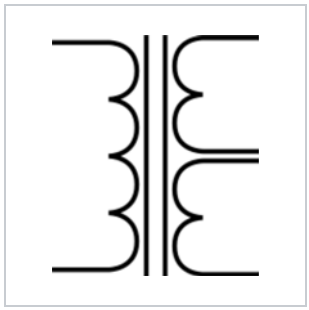


Fuse: IEC (top) and American (lower two)

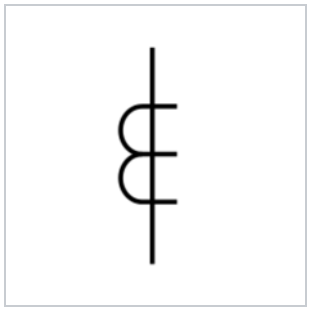
Transformers



Transformer with center tap

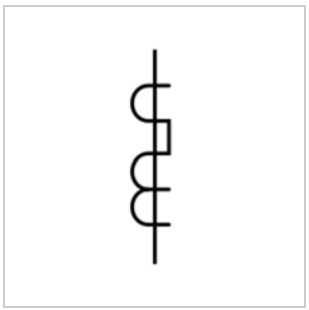


Transformer with two secondary windings

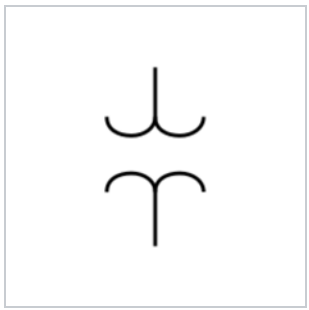


Current Transformer

Zero-Sequence Current Transformer (ZSCT) (a.k.a. window-type current transformer)



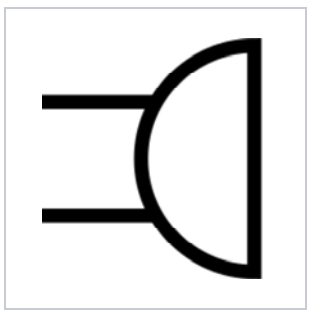
Bushing-Type Current Transformer



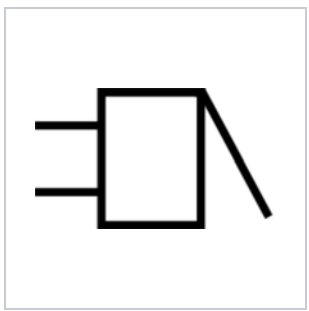
Voltage Transformer

Acoustic Devices

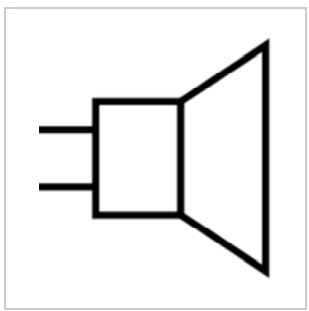
IEC-style microphone



Microphone (IEEE Std 315)

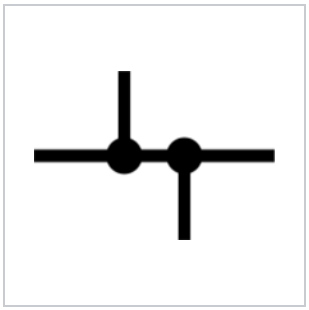


IEC-style buzzer

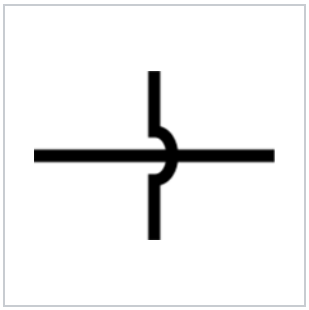


Loudspeaker (IEEE Std 315)

Traces

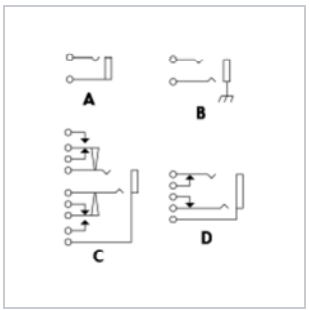


IEC-style trace junction

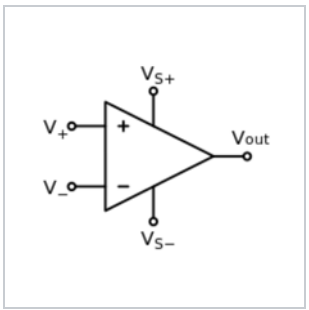


Trace crossing

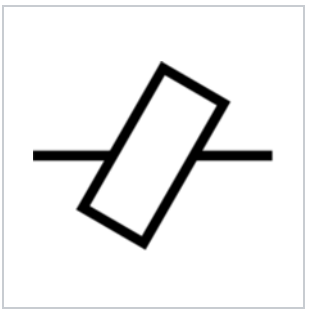
Miscellaneous



Phone jacks



Operational amplifier



Ferrite bead ring (IEEE Std 315)

See also

- Logic gate
- Circuit diagram
- Reference designator
- Symbols for appliance classes

References

1. Circuit Symbols for all Electronic Components. (http://www.talkingelectronics.com/CctSymbols/Circuit_Symbols.html) Talking Electronics, 2013. Retrieved 01 Apr 2015.

External links

- International standard IEC 60617 DB Graphical symbols for diagrams (http://std.iec.ch/iec60617)
- Electrical Schematic Symbols (http://www.circuitstune.com/2012/07/electrical-schematic-symbols.html)
- Collection of Open Source Electrical, Pneumatic, Hydraulic and Electronic Symbols (https://symbols.radicasoftware.com/)

- Circuit Symbols of Electronic Components (http://electronicsclub.info/circuitsymbols.htm)
- Electrical & Electronic Drawing Symbols (http://www.rapidtables.com/electric/electrical_symbols.htm)
- Collection of Electronic Symbols (http://www.electronic-symbols.com)
- Circuit Schematic Symbols (http://www.allaboutcircuits.com/vol_5/chpt_9/1.html)
- Collection of Electrical and Electronic Schematic Symbols (http://www.electronicshub.org/symbols/)

Categories: Electronic engineering | Pictograms
